

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008											
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
0	0	NGAO System Design Phase Schedule		16,725 hrs	Wed 6/21/06	Thu 4/17/08																								
1	1	SD Phase Management	PW	2,175 hrs	Wed 6/21/06	Thu 4/17/08																								
2	1.1	Planning and Contracting	PW	230 hrs	Wed 6/21/06	Wed 11/14/07																								
3	1.1.1	NGAO Proposal to SSC		0 hrs	Wed 6/21/06	Wed 6/21/06																								
4	1.1.2	Management Structure Decision by Directors		0 hrs	Fri 7/14/06	Fri 7/14/06																								
5	1.1.3	SD Phase System Engineering Management Plan	PW	80 hrs	Fri 9/1/06	Fri 9/29/06																								
6	1.1.4	SD Phase Contracts Generated	PW	60 hrs	Wed 9/27/06	Fri 10/27/06																								
7	1.1.5	Director Approval		0 hrs	Mon 10/9/06	Mon 10/9/06																								
8	1.1.6	SD Partner Contracts Issued	PW	0 hrs	Fri 10/27/06	Fri 10/27/06																								
9	1.1.7	Mid-year Replan	PW	40 hrs	Mon 3/5/07	Fri 3/16/07																								
10	1.1.8	FY08 Replan	PW	50 hrs	Thu 10/25/07	Wed 11/14/07																								
11	1.2	Project Meetings		1,352 hrs	Wed 6/21/06	Thu 4/3/08																								
12	1.2.1	Executive Committee Telecons	PW...	360 hrs	Wed 6/21/06	Thu 4/3/08																								
13	1.2.2	Science Advisory Committee Telecons	CM	40 hrs	Mon 10/2/06	Fri 3/28/08																								
14	1.2.3	Team Meetings		952 hrs	Thu 9/14/06	Wed 1/9/08																								
15	1.2.3.1	Team Meeting #1 (mgmt, science & technical - Ir		68 hrs	Thu 9/14/06	Thu 9/14/06																								
16	1.2.3.2	Team Meeting #2 (CIT)		80 hrs	Tue 11/14/06	Tue 11/14/06																								
17	1.2.3.3	Team Videocon #3		44 hrs	Wed 12/13/06	Wed 12/13/06																								
18	1.2.3.4	Team Meeting #4 (Keck)		80 hrs	Mon 1/22/07	Mon 1/22/07																								
19	1.2.3.5	Team Videocon #5		44 hrs	Wed 3/7/07	Wed 3/7/07																								
20	1.2.3.6	Team Meeting #6 (UCSC)		80 hrs	Wed 4/18/07	Wed 4/18/07																								
21	1.2.3.7	Team Videocon #7		44 hrs	Wed 5/30/07	Wed 5/30/07																								
22	1.2.3.8	Team Retreat #8 (UCSC)		220 hrs	Mon 7/9/07	Wed 7/11/07																								
23	1.2.3.9	Team Videocon #9		44 hrs	Wed 8/22/07	Wed 8/22/07																								
24	2.3.10	Team Meeting #10 (CIT)		80 hrs	Tue 9/11/07	Tue 9/11/07																								
25	2.3.11	Team Videocon #11		44 hrs	Mon 11/5/07	Mon 11/5/07																								
26	2.3.12	Team Meeting #12 (Keck)		80 hrs	Wed 12/12/07	Wed 12/12/07																								
27	2.3.13	Team Videocon #13		44 hrs	Wed 1/9/08	Wed 1/9/08																								

Project: NGAO System Design Phase
Date: Fri 4/20/07

Critical

Critical Split

Critical Progress

Task

Split

Task Progress

Baseline

Baseline Split

Baseline Milestone

Milestone

Summary Progress

Summary

Project Summary

External Tasks

External Milestone

Deadline

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008											
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
28	1.3	Tracking and Reporting	PW	120 hrs	Sat 9/16/06	Thu 4/3/08																								
29	1.3.1	Report Preparation/Presentation	PW	120 hrs	Mon 10/2/06	Wed 12/12/07																								
30	1.3.2	Keck Science Meeting 06 (UCI)		0 hrs	Sat 9/16/06	Sat 9/16/06																								
31	1.3.3	SSC meeting (UCLA)		0 hrs	Mon 11/6/06	Mon 11/6/06																								
32	1.3.4	SSC meeting (Keck)		0 hrs	Wed 1/24/07	Wed 1/24/07																								
33	1.3.5	SSC meeting (CA)		0 hrs	Tue 4/3/07	Tue 4/3/07																								
34	1.3.6	SSC meeting (Keck)		0 hrs	Wed 6/20/07	Wed 6/20/07																								
35	1.3.7	Keck Science Meeting 07		0 hrs	Sat 9/22/07	Sat 9/22/07																								
36	1.3.8	SSC meeting (CA)		0 hrs	Tue 11/6/07	Tue 11/6/07																								
37	1.3.9	SSC meeting (Keck)		0 hrs	Thu 1/24/08	Thu 1/24/08																								
38	1.3.10	SSC meeting (CA)		0 hrs	Thu 4/3/08	Thu 4/3/08																								
39	1.4	Proposals & Fundraising		0 hrs	Fri 10/27/06	Mon 1/1/07																								
40	1.4.1	Dates & deliverables identified by Directors		0 hrs	Fri 10/27/06	Fri 10/27/06																								
41	1.4.2	Support Advancement Office		0 hrs	Mon 1/1/07	Mon 1/1/07																								
42	1.5	System Design Report & Review	SA	473 hrs	Mon 10/1/07	Thu 4/17/08																								
43	1.5.1	System Design Report	PW	40 hrs	Wed 2/20/08	Mon 3/3/08																								
44	1.5.2	System Design Review	PW	433 hrs	Mon 10/1/07	Thu 4/17/08																								
45	1.5.2.1	Identify Reviewers	SA	15 hrs	Mon 10/1/07	Fri 12/14/07																								
46	1.5.2.2	Review Package Distributed	SA	8 hrs	Mon 3/3/08	Tue 3/4/08																								
47	1.5.2.3	Reviewer Comments Addressed	PW	120 hrs	Tue 3/18/08	Tue 3/25/08																								
48	1.5.2.4	System Design Review Support	PW	250 hrs	Mon 3/3/08	Mon 3/31/08																								
49	1.5.2.5	System Design Review Meeting	SA	0 hrs	Mon 3/31/08	Mon 3/31/08																								
50	1.5.2.6	Reviewer Report Received		0 hrs	Mon 4/14/08	Mon 4/14/08																								
51	1.5.2.7	Response to Reviewer Report & Distribution	PW	40 hrs	Mon 4/14/08	Thu 4/17/08																								
52	2	System Requirements	PW	3,524 hrs	Mon 10/2/06	Fri 11/2/07																								
53	2.1	Science Requirements	CM	3,090 hrs	Mon 10/2/06	Mon 10/15/07																								
54	2.1.1	Solar System Science Requirements	FM	650 hrs	Mon 10/2/06	Fri 4/6/07																								
55	2.1.1.1	Companions & Multiplicity of Small Solar Sys		250 hrs	Mon 10/2/06	Fri 1/12/07																								

Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Split		Summary Progress			
	Task Progress		Summary			

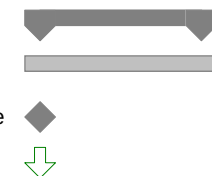
ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008										
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
56	1.1.1.1	Point Source Companion Sensitivity Require		100 hrs	Mon 10/2/06	Fri 12/1/06																							
57	1.1.1.2	Spectral Sensitivity & Spectral Resolution Ri		100 hrs	Mon 10/2/06	Fri 12/1/06																							
58	1.1.1.3	Observing Scenarios		25 hrs	Mon 12/4/06	Fri 1/12/07																							
59	1.1.1.4	Science Instrument Requirements		25 hrs	Mon 12/4/06	Fri 1/12/07																							
60	2.1.1.2	Moons of the Giant Planets		150 hrs	Mon 12/4/06	Fri 3/9/07																							
61	1.1.2.1	Performance Requirements		100 hrs	Mon 12/4/06	Fri 1/26/07																							
62	1.1.2.2	Observing Scenarios		25 hrs	Mon 1/29/07	Fri 3/9/07																							
63	1.1.2.3	Science Instrument Requirements		25 hrs	Mon 1/29/07	Fri 3/9/07																							
64	2.1.1.3	Shape & Size of Asteroids		250 hrs	Mon 1/29/07	Fri 4/6/07																							
65	1.1.3.1	Spatial Resolution Requirements		100 hrs	Mon 1/29/07	Fri 3/2/07																							
66	1.1.3.2	Spectral Sensitivity & Spectral Resolution Ri		100 hrs	Mon 1/29/07	Fri 3/2/07																							
67	1.1.3.3	Observing Scenarios		25 hrs	Mon 3/5/07	Fri 4/6/07																							
68	1.1.3.4	Science Instrument Requirements		25 hrs	Mon 3/5/07	Fri 4/6/07																							
69	2.1.2	Galactic Science Requirements	ML	1,200 hrs	Mon 10/2/06	Fri 4/6/07																							
70	2.1.2.1	Galactic Center Proper Motions: Astrometry	AG	200 hrs	Mon 10/2/06	Fri 1/12/07																							
71	1.2.1.1	Astrometry requirements		150 hrs	Mon 10/2/06	Fri 12/8/06																							
72	1.2.1.2	Observing Scenarios		25 hrs	Mon 11/27/06	Fri 1/12/07																							
73	1.2.1.3	Science Instrument Requirements		25 hrs	Mon 11/27/06	Fri 1/12/07																							
74	2.1.2.2	Galactic Center Radial Velocities & Stellar Poi	AG	200 hrs	Mon 11/27/06	Fri 3/9/07																							
75	1.2.2.1	Performance Requirements		150 hrs	Mon 11/27/06	Fri 1/26/07																							
76	1.2.2.2	Observing Scenarios		25 hrs	Mon 1/29/07	Fri 3/9/07																							
77	1.2.2.3	Science Instrument Requirements		25 hrs	Mon 1/29/07	Fri 3/9/07																							
78	2.1.2.3	Galactic Center Nature of Sgr A*: 3-5 um Colo	AG	200 hrs	Mon 1/29/07	Fri 4/6/07																							
79	1.2.3.1	Performance Requirements		150 hrs	Mon 1/29/07	Fri 3/2/07																							
80	1.2.3.2	Observing Scenarios		25 hrs	Mon 3/5/07	Fri 4/6/07																							
81	1.2.3.3	Science Instrument Requirements		25 hrs	Mon 3/5/07	Fri 4/6/07																							
82	2.1.2.4	Planets around Low Mass Stars & Brown Dwa	ML	200 hrs	Mon 10/2/06	Fri 1/12/07																							
83	1.2.4.1	Companion Sensitivity Performance Require		150 hrs	Mon 10/2/06	Fri 12/8/06																							

Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Task Progress		Summary			

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							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
84	1.2.4.2	Observing Scenarios		25 hrs	Mon 11/27/06	Fri 1/12/07																							
85	1.2.4.3	Science Instrument Requirements		25 hrs	Mon 11/27/06	Fri 1/12/07																							
86	2.1.2.5	Debris Disks, Protostellar Envelopes & Outflo	LH	200 hrs	Mon 1/29/07	Fri 4/6/07																							
87	1.2.5.1	Contrast Performance Requirements		150 hrs	Mon 1/29/07	Fri 3/2/07																							
88	1.2.5.2	Observing Scenarios		25 hrs	Mon 3/5/07	Fri 4/6/07																							
89	1.2.5.3	Science Instrument Requirements		25 hrs	Mon 3/5/07	Fri 4/6/07																							
90	2.1.2.6	Debris Disks, Protostellar Envelopes & Outflo		200 hrs	Mon 11/27/06	Fri 3/9/07																							
91	1.2.6.1	Polarimetry Performance Requirements		150 hrs	Mon 11/27/06	Fri 1/26/07																							
92	1.2.6.2	Observing Scenarios		25 hrs	Mon 1/29/07	Fri 3/9/07																							
93	1.2.6.3	Science Instrument Requirements		25 hrs	Mon 1/29/07	Fri 3/9/07																							
94	2.1.3	Extragalactic Science Requirements	CM	1,000 hrs	Mon 10/2/06	Fri 4/27/07																							
95	2.1.3.1	Resolved Stellar Populations in Crowded Fiel		300 hrs	Mon 10/2/06	Fri 2/2/07																							
96	1.3.1.1	Performance Requirements		250 hrs	Mon 10/2/06	Fri 12/22/06																							
97	1.3.1.2	Observing Scenarios		25 hrs	Mon 12/11/06	Fri 2/2/07																							
98	1.3.1.3	Science Instrument Requirements		25 hrs	Mon 12/11/06	Fri 2/2/07																							
99	2.1.3.2	High Redshift Galaxies		300 hrs	Mon 10/2/06	Fri 2/2/07																							
100	1.3.2.1	Encircled Energy (& d-IFU) Performance Re		200 hrs	Mon 10/2/06	Fri 12/22/06																							
101	1.3.2.2	Observing Scenarios		50 hrs	Mon 12/11/06	Fri 2/2/07																							
102	1.3.2.3	Science Instrument Requirements		50 hrs	Mon 12/11/06	Fri 2/2/07																							
103	2.1.3.3	Nearby Galaxies		200 hrs	Mon 12/11/06	Fri 4/27/07																							
104	1.3.3.1	Encircled Energy & PSF Performance Requ		150 hrs	Mon 12/11/06	Fri 3/2/07																							
105	1.3.3.2	Observing Scenarios		25 hrs	Mon 3/5/07	Fri 4/27/07																							
106	1.3.3.3	Science Instrument Requirements		25 hrs	Mon 3/5/07	Fri 4/27/07																							
107	2.1.3.4	Gravitational Lensing		200 hrs	Mon 12/11/06	Fri 4/27/07																							
108	1.3.4.1	Encircled Energy & PSF Performance Requ		150 hrs	Mon 12/11/06	Fri 3/2/07																							
109	1.3.4.2	Observing Scenarios		25 hrs	Mon 3/5/07	Fri 4/27/07																							
110	1.3.4.3	Science Instrument Requirements		25 hrs	Mon 3/5/07	Fri 4/27/07																							
111	2.1.4	Science Requirements Summary	CM	240 hrs	Mon 10/2/06	Mon 10/15/07																							

Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Split		Summary Progress			
	Task Progress		Summary			

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008											
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
112	2.1.4.1	Science Requirements Summary Rev 1		40 hrs	Mon 10/2/06	Thu 10/19/06																								
113	2.1.4.2	Science Requirements Summary Rev 2		120 hrs	Tue 2/13/07	Fri 3/2/07																								
114	2.1.4.3	Science Requirements Summary Rev 3		40 hrs	Tue 6/5/07	Fri 6/22/07																								
115	2.1.4.4	Science Requirements Summary Final		40 hrs	Wed 9/26/07	Mon 10/15/07																								
116	2.2	Observatory Requirements	CN	224 hrs	Mon 10/2/06	Fri 9/7/07																								
117	2.2.1	Development Requirements	CN	16 hrs	Mon 10/2/06	Fri 11/24/06																								
118	2.2.2	Observatory Interface Requirements	CN	24 hrs	Mon 10/2/06	Fri 10/27/06																								
119	2.2.3	Science Operations Requirements	DLM	64 hrs	Mon 10/2/06	Fri 11/24/06																								
120	2.2.4	Observatory Requirements Rev 2	CN	80 hrs	Mon 1/22/07	Fri 2/9/07																								
121	2.2.5	Observatory Requirements Rev 3	CN	20 hrs	Mon 4/9/07	Fri 5/18/07																								
122	2.2.6	Observatory Requirements Rev 4	CN	20 hrs	Mon 7/16/07	Fri 9/7/07																								
123	2.3	System Requirements Document		210 hrs	Mon 10/9/06	Fri 11/2/07																								
124	2.3.1	Traceability Matrix	CN	130 hrs	Mon 10/9/06	Sat 10/20/07																								
125	2.3.1.1	Traceability Matrix Rev 1	CN	10 hrs	Mon 10/9/06	Fri 10/20/06																								
126	2.3.1.2	Traceability Matrix Rev 2	CN	80 hrs	Mon 2/12/07	Tue 2/27/07																								
127	2.3.1.3	Traceability Matrix Rev 3	CN	20 hrs	Fri 6/15/07	Thu 6/28/07																								
128	2.3.1.4	Traceability Matrix Rev 4	CN	20 hrs	Tue 10/9/07	Sat 10/20/07																								
129	2.3.2	System Requirements Document	PW	80 hrs	Mon 11/27/06	Fri 11/2/07																								
130	2.3.2.1	SRD Rev 1	PW	20 hrs	Mon 11/27/06	Fri 12/8/06																								
131	2.3.2.2	SRD Rev 2	CN	20 hrs	Fri 3/9/07	Thu 3/22/07																								
132	2.3.2.3	SRD Rev 3	CN	20 hrs	Fri 6/29/07	Thu 7/12/07																								
133	2.3.2.4	SRD Final SD Phase Version	CN	20 hrs	Mon 10/22/07	Fri 11/2/07																								
134	3	System Design	PW	9,826 hrs	Mon 8/14/06	Fri 1/18/08																								
135	3.1	Systems Engineering	RD	5,256 hrs	Mon 8/14/06	Fri 12/28/07																								
136	3.1.1	Performance Budgets	RD	2,346 hrs	Mon 8/14/06	Wed 12/12/07																								
137	3.1.1.1	Model Assumptions	CN	260 hrs	Mon 8/14/06	Fri 6/29/07																								
138	1.1.1.1	TMT site monitoring data mining	RF	80 hrs	Mon 8/14/06	Fri 6/29/07																								
139	1.1.1.1	Tools in place & 1st release	RF	40 hrs	Mon 8/14/06	Thu 9/14/06																								

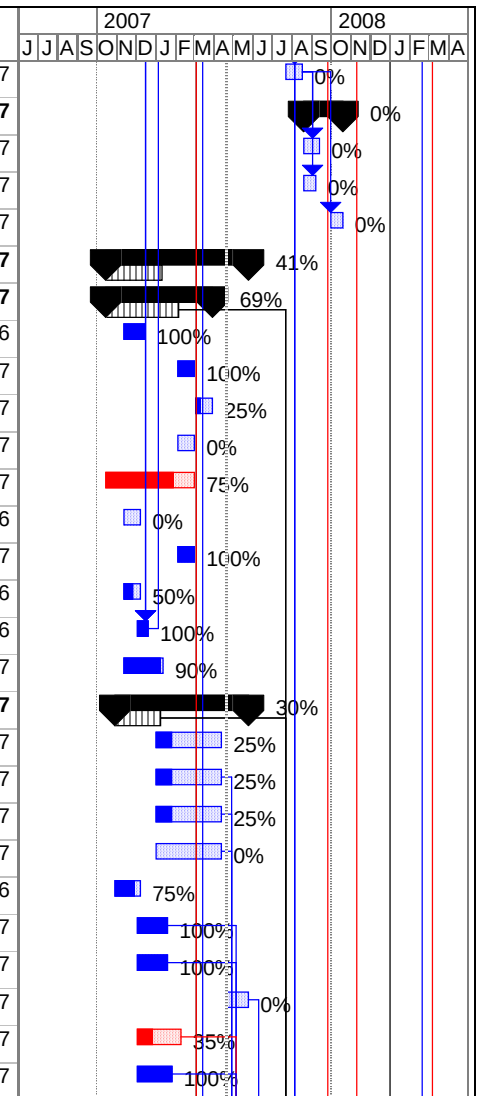


Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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140	1.1.1.2	Release updated data (every two months)	RF	40 hrs	Mon 9/18/06	Fri 6/29/07																							50%	
141	1.1.1.2	Telescope dynamic performance data	CN	120 hrs	Mon 10/2/06	Thu 11/30/06																								100%
142	1.1.1.3	Telescope static wavefront errors	CN	20 hrs	Mon 10/2/06	Thu 11/30/06																								100%
143	1.1.1.4	Sodium return vs laser format	DG	40 hrs	Wed 11/1/06	Thu 11/30/06																								100%
144	3.1.1.2	Model/Tool Validation	CN	334 hrs	Mon 8/14/06	Fri 12/15/06																								71%
145	1.1.2.1	Agreement between Tomography Codes	DG	40 hrs	Mon 8/14/06	Fri 9/29/06																								100%
146	1.1.2.2	Agreement between Sky Coverage Codes	RD	40 hrs	Mon 10/16/06	Fri 11/3/06																								100%
147	1.1.2.3	Anchor to Keck II LGS AO PSFs	CN	40 hrs	Mon 10/2/06	Mon 10/30/06																								25%
148	1.1.2.4	Anchor to On-sky MGSU Experiments	RF	10 hrs	Fri 11/10/06	Wed 11/15/06																								100%
149	1.1.2.5	Anchor to LAO Lab Experiments	DG	204 hrs	Mon 11/6/06	Fri 12/15/06																								50%
150	3.1.1.3	Throughput	AB	32 hrs	Mon 10/2/06	Fri 12/29/06																								50%
151	3.1.1.4	Background	AB	50 hrs	Mon 10/2/06	Tue 1/9/07																								47%
152	1.1.4.1	Document Proposal Analysis	AB	10 hrs	Mon 10/2/06	Thu 10/12/06																								25%
153	1.1.4.2	Develop Background Performance Budget	AB	40 hrs	Mon 10/2/06	Tue 1/9/07																								50%
154	3.1.1.5	Wavefront Error vs Sky Coverage	RD	110 hrs	Mon 10/2/06	Tue 1/30/07																								33%
155	1.1.5.1	Document WFE Budget Rev 1	RD	40 hrs	Mon 10/2/06	Fri 12/8/06																								50%
156	1.1.5.2	Document WFE Budget Rev 2	RD	70 hrs	Wed 12/27/06	Tue 1/30/07																								0%
157	3.1.1.6	Encircled Energy vs Sky Coverage	DG	110 hrs	Mon 10/23/06	Fri 12/29/06																								75%
158	3.1.1.7	Photometric Accuracy	MB	240 hrs	Mon 10/16/06	Fri 1/26/07																								100%
159	3.1.1.8	Astrometric Accuracy	BC	240 hrs	Mon 11/13/06	Fri 6/29/07																								50%
160	3.1.1.9	Polarimetric Accuracy	MI	40 hrs	Mon 2/5/07	Fri 3/9/07																								75%
161	1.1.10	Companion Sensitivity	RF	240 hrs	Mon 11/13/06	Tue 1/9/07																								75%
162	1.1.1.11	Observing Efficiency	DLM	100 hrs	Mon 2/5/07	Fri 3/16/07																								50%
163	1.1.1.12	Observing Uptime	EJ	80 hrs	Mon 11/5/07	Wed 12/12/07																								25%
164	1.1.1.13	Performance Budgets Summary		160 hrs	Wed 1/31/07	Fri 7/20/07																								0%
165	1.1.13.1	Performance Budgets Summary Ver 1	RD	100 hrs	Wed 1/31/07	Tue 2/27/07																								0%
166	1.1.13.2	Performance Budgets Summary Ver 2	RD	60 hrs	Mon 7/2/07	Fri 7/20/07																								0%
167	1.1.1.14	Science Products		350 hrs	Mon 7/23/07	Fri 10/19/07																								0%

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168	1.14.1	All-In Science Simulations	CN	160 hrs	Mon 7/23/07	Fri 8/17/07																							
169	1.14.2	Additional Science Characterization Resu		190 hrs	Mon 8/20/07	Fri 10/19/07																							
170	14.2.1	Point Source Sensitivities	AB	30 hrs	Mon 8/20/07	Thu 9/13/07																							
171	14.2.2	PSF Uniformity & Stability	CN	80 hrs	Mon 8/20/07	Fri 9/7/07																							
172	14.2.3	Other	RF	80 hrs	Mon 10/1/07	Fri 10/19/07																							
173	3.1.2	Trade Studies	RD	1,790 hrs	Mon 10/16/06	Fri 5/25/07																							
174	3.1.2.1	System Architecture Trade Studies		690 hrs	Mon 10/16/06	Fri 3/30/07																							
175	1.2.1.1	MOAO & MCAO TS	DG	80 hrs	Mon 11/13/06	Fri 12/15/06																							
176	1.2.1.2	NGAO versus Keck AO upgrades TS (meeti	PW	100 hrs	Mon 2/5/07	Fri 3/2/07																							
177	1.2.1.3	Adaptive Secondary Mirror option TS (m5)	PW	40 hrs	Mon 3/5/07	Fri 3/30/07																							
178	1.2.1.4	K & L-band Science TS (m5)	AB	40 hrs	Mon 2/5/07	Fri 3/2/07																							
179	1.2.1.5	Keck Interferometer Support TS (m5)	CN	120 hrs	Mon 10/16/06	Fri 3/2/07																							
180	1.2.1.6	Instrument Balance TS	SA	10 hrs	Mon 11/13/06	Fri 12/8/06																							
181	1.2.1.7	GLAO for non-NGAO Instruments TS (m5)	RF	20 hrs	Mon 2/5/07	Fri 3/2/07																							
182	1.2.1.8	Science Instrument Re-use Cost/Benefit TS	SA	120 hrs	Mon 11/13/06	Fri 12/8/06																							
183	1.2.1.9	Telescope Wavefront Errors TS	CN	80 hrs	Mon 12/4/06	Wed 12/20/06																							
184	2.1.10	Observing Model TS	DLM	80 hrs	Mon 11/13/06	Fri 1/12/07																							
185	3.1.2.2	Adaptive Optics System Trade Studies		880 hrs	Mon 10/30/06	Fri 5/25/07																							
186	1.2.2.1	AO Enclosure Temperature TS (m6)	AB	70 hrs	Tue 1/2/07	Fri 4/13/07																							
187	1.2.2.2	Optical Relay TS (m6)	RD	60 hrs	Tue 1/2/07	Fri 4/13/07																							
188	1.2.2.3	Field Rotation Strategy TS (m6)	BB	80 hrs	Tue 1/2/07	Fri 4/13/07																							
189	1.2.2.4	Dichroics & Beamsplitters TS (m6)	VV	60 hrs	Tue 1/2/07	Fri 4/13/07																							
190	1.2.2.5	Rayleigh Rejection TS (m3)	VV	40 hrs	Mon 10/30/06	Fri 12/8/06																							
191	1.2.2.6	LGS WFS Type TS (m4)	VV	30 hrs	Mon 12/4/06	Fri 1/19/07																							
192	1.2.2.7	LGS WFS number of subapertures TS (m4)	VV	20 hrs	Mon 12/4/06	Fri 1/19/07																							
193	1.2.2.8	Slow WFS TS (m7)	VV	80 hrs	Mon 4/23/07	Fri 5/25/07																							
194	1.2.2.9	LOWFS Architecture TS	RF	160 hrs	Mon 12/4/06	Fri 2/9/07																							
195	2.2.10	Number & Type of LOWFS TS (m4)	RC	60 hrs	Mon 12/4/06	Fri 1/26/07																							



Project: NGAO System Design Phase
Date: Fri 4/20/07

Critical

Critical Split

Critical Progress

Task

Split

Task Progress

Baseline

Baseline Split

Baseline Milestone

Milestone

Summary Progress

Summary

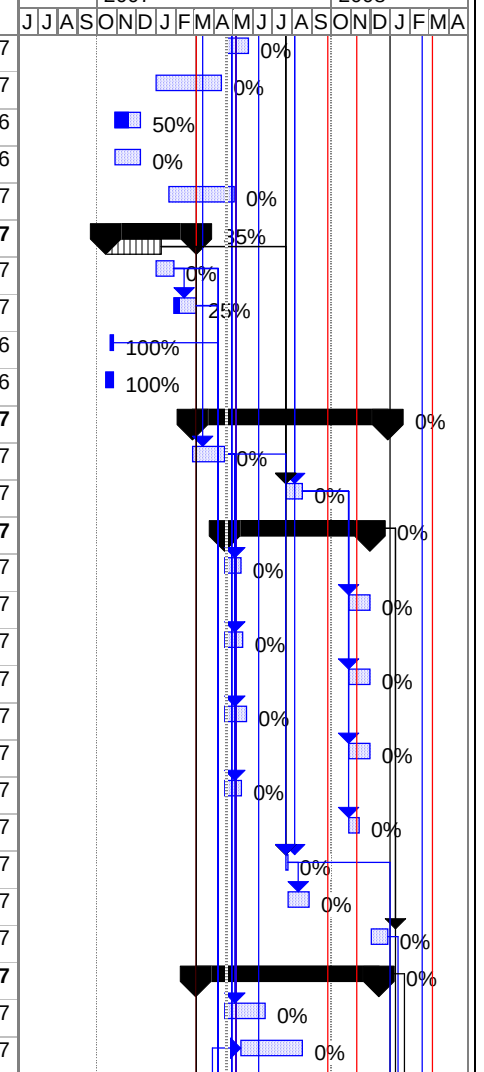
Project Summary

External Tasks

External Milestone

Deadline

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008									
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
196	2.2.11	Centroid Anisoplanatism TS (m7)	SK	40 hrs	Mon 4/23/07	Fri 5/25/07																						
197	2.2.12	Deformable Mirror Stroke Requirement TS (	RF	50 hrs	Tue 1/2/07	Fri 4/13/07																						
198	2.2.13	Stand-alone vs DM on T/T Stage TS (m3)	BB	60 hrs	Mon 10/30/06	Fri 12/8/06																						
199	2.2.14	Correcting Fast T/T with DM TS	Cancel	40 hrs	Mon 10/30/06	Fri 12/8/06																						
200	2.2.15	Focus Compensation TS (m6)	SK	30 hrs	Mon 1/22/07	Thu 5/3/07																						
201	3.1.2.3	Laser Facility Trade Studies		220 hrs	Mon 10/16/06	Mon 3/5/07																						
202	1.2.3.1	Laser Pulse Format TS (m6)	VV	80 hrs	Tue 1/2/07	Mon 1/29/07																						
203	1.2.3.2	Free Space vs Fiber TS (m7)	CN	100 hrs	Tue 1/30/07	Mon 3/5/07																						
204	1.2.3.3	LGS Asterism Geometry & Size TS (m2)	RF	20 hrs	Mon 10/23/06	Fri 10/27/06																						
205	1.2.3.4	Variable vs fixed LGS Asterism Cost/Benefit	VV	20 hrs	Mon 10/16/06	Fri 10/27/06																						
206	3.1.3	System Architecture	RD	1,120 hrs	Wed 2/28/07	Fri 12/28/07																						
207	3.1.3.1	System Architecture Ver 1	RD	80 hrs	Wed 2/28/07	Wed 4/18/07																						
208	3.1.3.2	System Architecture Ver 2	RD	60 hrs	Mon 7/23/07	Fri 8/17/07																						
209	3.1.3.3	Functional Requirements		860 hrs	Thu 4/19/07	Fri 11/30/07																						
210	1.3.3.1	AO System Functional Requirements Ver 1	CN	200 hrs	Thu 4/19/07	Mon 5/14/07																						
211	1.3.3.2	AO System Functional Requirements Ver 2	CN	100 hrs	Mon 10/29/07	Fri 11/30/07																						
212	1.3.3.3	Laser System Functional Requirements Ver	JC	135 hrs	Thu 4/19/07	Wed 5/16/07																						
213	1.3.3.4	Laser System Functional Requirements Ver	JC	65 hrs	Mon 10/29/07	Fri 11/30/07																						
214	1.3.3.5	Science Operations Functional Requirement	DLM	100 hrs	Thu 4/19/07	Tue 5/22/07																						
215	1.3.3.6	Science Operations Functional Requirement	DLM	100 hrs	Mon 10/29/07	Fri 11/30/07																						
216	1.3.3.7	Science Instruments Function Allocation Ver	SA	80 hrs	Thu 4/19/07	Mon 5/14/07																						
217	1.3.3.8	Science Instruments Function Allocation Ver	SA	80 hrs	Mon 10/29/07	Wed 11/14/07																						
218	3.1.3.4	Technology Drivers Summary	DG	40 hrs	Mon 7/23/07	Thu 7/26/07																						
219	3.1.3.5	Technical Risk Analysis Ver 1	DG	40 hrs	Thu 7/26/07	Tue 8/28/07																						
220	3.1.3.6	Technical Risk Analysis Ver 2	DG	40 hrs	Mon 12/3/07	Fri 12/28/07																						
221	3.2	AO System	DG	1,780 hrs	Mon 3/5/07	Fri 12/14/07																						
222	3.2.1	AO System Architecture	DG	240 hrs	Thu 4/19/07	Wed 6/20/07																						
223	3.2.2	AO Enclosure	JM	100 hrs	Mon 5/14/07	Fri 8/17/07																						



Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
	Critical Split		Baseline Split		External Tasks	
	Critical Progress		Baseline Milestone		External Milestone	
	Task		Milestone		Deadline	
	Split		Summary Progress			
	Task Progress		Summary			

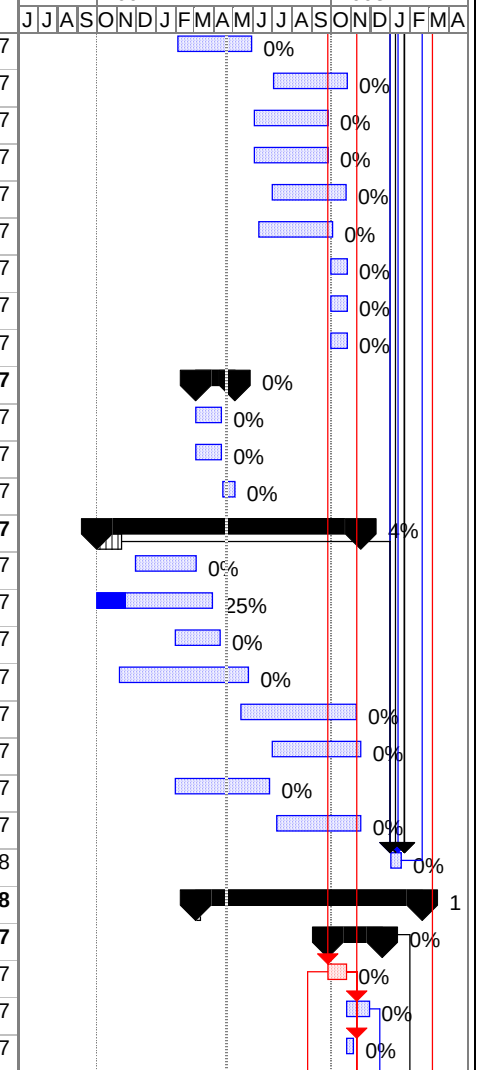
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							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
224	3.2.3	Opto-mechanical	BB	700 hrs	Mon 4/2/07	Fri 12/14/07																								
225	3.2.3.1	Field Rotation	BB	45 hrs	Mon 4/16/07	Wed 8/8/07																								
226	3.2.3.2	Optical Relay	BB	60 hrs	Mon 4/16/07	Wed 8/15/07																								
227	3.2.3.3	Optical Switchyard	BB	50 hrs	Mon 4/16/07	Fri 6/29/07																								
228	3.2.3.4	Optical Support Structure	BB	45 hrs	Mon 10/1/07	Fri 11/16/07																								
229	3.2.3.5	Wavefront Sensors	VV	240 hrs	Mon 5/7/07	Wed 12/12/07																								
230	2.3.5.1	High Order LGS Wavefront Sensors	VV	80 hrs	Mon 5/7/07	Wed 12/12/07																								
231	2.3.5.2	High Order NGS Wavefront Sensor	VV	40 hrs	Mon 5/7/07	Wed 12/12/07																								
232	2.3.5.3	Low Order NGS Wavefront Sensors	SK	80 hrs	Mon 5/7/07	Wed 12/12/07																								
233	2.3.5.4	Calibration Wavefront Sensor	SK	40 hrs	Mon 5/28/07	Wed 12/12/07																								
234	3.2.3.6	Wavefront Correctors	BB	140 hrs	Mon 4/2/07	Fri 11/30/07																								
235	2.3.6.1	Tip/Tilt Corrector	BB	20 hrs	Mon 10/1/07	Fri 11/30/07																								
236	2.3.6.2	Deformable Mirror	BB	120 hrs	Mon 4/2/07	Fri 6/29/07																								
237	3.2.3.7	Acquisition Cameras	AB	40 hrs	Mon 10/1/07	Fri 10/26/07																								
238	2.3.7.1	NGS Acquisition Camera	AB	20 hrs	Mon 10/1/07	Fri 10/26/07																								
239	2.3.7.2	LGS Acquisition Camera	AB	20 hrs	Mon 10/1/07	Fri 10/26/07																								
240	3.2.3.8	Atmospheric Dispersion Correction	SK	20 hrs	Mon 8/20/07	Fri 12/14/07																								
241	3.2.3.9	Alignment, Calibration, Diagnostics, Metrology ar	CN	60 hrs	Mon 4/2/07	Fri 6/29/07																								
242	3.2.4	Non-real-time Control	JC	400 hrs	Mon 6/25/07	Fri 11/23/07																								
243	3.2.4.1	Non-RTC Software	EJ	200 hrs	Mon 6/25/07	Fri 8/31/07																								
244	3.2.4.2	Non-RTC Electronics	JC	200 hrs	Mon 7/23/07	Fri 11/23/07																								
245	3.2.5	Real-time Control	DG	340 hrs	Mon 3/5/07	Tue 8/7/07																								
246	3.2.5.1	RTC Architecture Analysis and Design Study	DG	180 hrs	Mon 3/5/07	Fri 5/4/07																								
247	3.2.5.2	RTC Software Module Definition	EJ	80 hrs	Mon 5/7/07	Tue 8/7/07																								
248	3.2.5.3	RTC Hardware Module Definition	MR	80 hrs	Mon 5/7/07	Tue 8/7/07																								
249	3.3	Laser Facility		750 hrs	Tue 3/6/07	Fri 12/14/07																								
250	3.3.1	Laser System Architecture	VV	80 hrs	Tue 3/6/07	Mon 5/14/07																								
251	3.3.2	Laser Enclosure	JM	80 hrs	Tue 5/15/07	Thu 7/12/07																								

Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Critical Progress		Baseline Milestone		External Milestone	
	Task		Milestone		Deadline	
	Split		Summary Progress			
	Task Progress		Summary			

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008											
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
252	3.3.3	Laser	VV	100 hrs	Tue 5/15/07	Mon 7/2/07																								
253	3.3.4	Laser Launch Facility	VV	300 hrs	Mon 4/9/07	Fri 6/1/07																								
254	3.3.4.1	Laser Beam Transport	CN	60 hrs	Mon 4/9/07	Fri 6/1/07																								
255	3.3.4.2	Laser Pointing & Diagnostics	VV	120 hrs	Mon 4/9/07	Fri 6/1/07																								
256	3.3.4.3	Laser Launch Telescope	VV	120 hrs	Mon 4/9/07	Fri 6/1/07																								
257	3.3.5	Laser Safety Systems	JC	40 hrs	Mon 10/8/07	Fri 11/2/07																								
258	3.3.5.1	Personnel and Equipment Safety Systems	JC	20 hrs	Mon 10/8/07	Fri 11/2/07																								
259	3.3.5.2	Aircraft, Satellite & Laser Traffic Control Safety S	JC	20 hrs	Mon 10/8/07	Fri 11/2/07																								
260	3.3.6	Laser System Control	JC	150 hrs	Mon 10/1/07	Fri 12/14/07																								
261	3.3.6.1	Laser System Software	EJ	80 hrs	Mon 10/1/07	Fri 12/14/07																								
262	3.3.6.2	Laser System Electronics	JC	70 hrs	Mon 10/1/07	Fri 12/14/07																								
263	3.4	Science Operations	DLM	670 hrs	Tue 1/2/07	Fri 12/14/07																								
264	3.4.1	Astronomical Observations Operations	DLM	220 hrs	Thu 3/1/07	Fri 12/14/07																								
265	3.4.1.1	Pre-Observing Interfaces		60 hrs	Tue 5/1/07	Wed 5/30/07																								
266	4.1.1.1	AO Guide Star Interface		20 hrs	Tue 5/1/07	Wed 5/30/07																								
267	4.1.1.2	Science Observations Simulation Tools		40 hrs	Tue 5/1/07	Wed 5/30/07																								
268	3.4.1.2	Observing Interfaces		80 hrs	Thu 3/1/07	Fri 12/14/07																								
269	4.1.2.1	Acquisition		20 hrs	Thu 3/1/07	Mon 4/30/07																								
270	4.1.2.2	Observing Sequences		20 hrs	Thu 3/1/07	Mon 4/30/07																								
271	4.1.2.3	Instrument, AO & Telescope Observer Interf		20 hrs	Thu 3/1/07	Mon 4/30/07																								
272	4.1.2.4	Science Data Quality Monitoring		20 hrs	Wed 10/17/07	Fri 12/14/07																								
273	3.4.1.3	Post-Observing Interfaces		80 hrs	Mon 10/1/07	Tue 11/27/07																								
274	4.1.3.1	Generic Data Products		20 hrs	Mon 10/1/07	Tue 11/27/07																								
275	4.1.3.2	Science Data Quality Assessment		20 hrs	Mon 10/1/07	Tue 11/27/07																								
276	4.1.3.3	Science Data Archiving		40 hrs	Mon 10/1/07	Tue 11/27/07																								
277	3.4.2	AO-Instrument Operations	DLM	450 hrs	Tue 1/2/07	Fri 10/26/07																								
278	3.4.2.1	AO-Instrument Operations Architecture	DLM	270 hrs	Tue 1/2/07	Fri 10/26/07																								
279	4.2.1.1	AO-Instrument Observing Modes	DLM	80 hrs	Tue 1/2/07	Fri 2/2/07																								

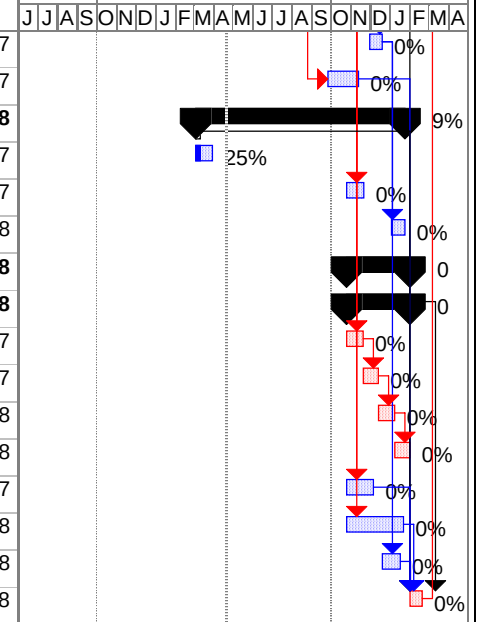
Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Critical Progress		Baseline Milestone		External Milestone	
	Task		Milestone		Deadline	
	Split		Summary Progress			
	Task Progress		Summary			

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008												
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A		
280	4.2.1.2	AO-Instrument Operations Support	DS	20 hrs	Mon 2/5/07	Wed 5/30/07																									
281	4.2.1.3	AO-Instrument Configuration & Setup		20 hrs	Wed 7/4/07	Fri 10/26/07																									
282	4.2.1.4	AO-Instrument Calibrations		20 hrs	Mon 6/4/07	Wed 9/26/07																									
283	4.2.1.5	AO-Instrument Nighttime Operation Modes		20 hrs	Mon 6/4/07	Wed 9/26/07																									
284	4.2.1.6	AO-Instrument Science Acquisition & Contrc		20 hrs	Mon 7/2/07	Wed 10/24/07																									
285	4.2.1.7	AO-Instrument Health Monitoring & Automat		20 hrs	Mon 6/11/07	Wed 10/3/07																									
286	4.2.1.8	AO-Instrument Laser Traffic Control		10 hrs	Mon 10/1/07	Fri 10/26/07																									
287	4.2.1.9	AO-Instrument User Interfaces		40 hrs	Mon 10/1/07	Fri 10/26/07																									
288	2.1.10	AO-Instrument Maintenance Plan		20 hrs	Mon 10/1/07	Fri 10/26/07																									
289	3.4.2.2	AO-Instrument Operations Optimization		180 hrs	Mon 3/5/07	Fri 5/4/07																									
290	4.2.2.1	AO-Instrument Performance Prediction		80 hrs	Mon 3/5/07	Fri 4/13/07																									
291	4.2.2.2	AO-Instrument Real-Time Optimization		80 hrs	Mon 3/5/07	Fri 4/13/07																									
292	4.2.2.3	AO-Instrument Environment Monitoring		20 hrs	Mon 4/16/07	Fri 5/4/07																									
293	3.5	Science Instruments	SA	1,290 hrs	Mon 10/2/06	Fri 11/16/07																									
294	3.5.1	OSIRIS		100 hrs	Fri 12/1/06	Mon 3/5/07																									
295	3.5.2	Interferometer		100 hrs	Mon 10/2/06	Fri 3/30/07																									
296	3.5.3	OHANA		40 hrs	Thu 2/1/07	Wed 4/11/07																									
297	3.5.4	Near-IR Imager		200 hrs	Mon 11/6/06	Fri 5/25/07																									
298	3.5.5	Visible Imager		200 hrs	Mon 5/14/07	Fri 11/9/07																									
299	3.5.6	Visible IFU		100 hrs	Mon 7/2/07	Fri 11/16/07																									
300	3.5.7	Deployable Near-IR IFU		500 hrs	Thu 2/1/07	Wed 6/27/07																									
301	3.5.8	Thermal Near-IR Imager		50 hrs	Mon 7/9/07	Fri 11/16/07																									
302	3.6	System Design Manual	PW	80 hrs	Tue 1/1/08	Fri 1/18/08																									
303	4	Systems Engineering Management Plan (SEMP)	PW	1,200 hrs	Mon 3/5/07	Wed 2/20/08																									
304	4.1	Project Plan	PW	540 hrs	Wed 9/26/07	Thu 12/20/07																									
305	4.1.1	WBS and Task Definition	PW	200 hrs	Wed 9/26/07	Thu 10/25/07																									
306	4.1.2	Cost Estimation	PW	220 hrs	Thu 10/25/07	Fri 11/30/07																									
307	4.1.3	Major Project Milestones	PW	30 hrs	Thu 10/25/07	Mon 11/5/07																									



Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Critical Progress		Baseline Milestone		External Milestone	
	Task		Milestone		Deadline	
	Split		Summary Progress			
	Task Progress		Summary			

ID	WBS	Task Name	Lead	Work	Start	Finish	2007												2008											
							J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	
308	4.1.4	Develop Full Schedule (MS Project Plan)	PW	90 hrs	Fri 11/30/07	Thu 12/20/07																								
309	4.2	Risk Assessment & Management Plan	DG	40 hrs	Wed 9/26/07	Tue 11/13/07																								
310	4.3	Preliminary Design Phase Plan	PW	200 hrs	Mon 3/5/07	Thu 1/24/08																								
311	4.3.1	Preliminary Design Phase Plan Version 1 (to Support	PW	40 hrs	Mon 3/5/07	Fri 3/30/07																								
312	4.3.2	Preliminary Design Phase Plan Version 2	PW	80 hrs	Thu 10/25/07	Wed 11/21/07																								
313	4.3.3	Preliminary Design Phase Plan Final Version	PW	80 hrs	Thu 1/3/08	Thu 1/24/08																								
314	4.4	Integration and Test Plans	CN	180 hrs	Thu 10/25/07	Fri 2/1/08																								
315	4.4.1	Subsystem Testing Plans	CN	80 hrs	Thu 10/25/07	Fri 2/1/08																								
316	4.4.1.1	AO System Test Plan	CN	20 hrs	Thu 10/25/07	Tue 11/20/07																								
317	4.4.1.2	Laser System Test Plan	CN	20 hrs	Tue 11/20/07	Fri 12/14/07																								
318	4.4.1.3	Science Operations Test Plan	CN	20 hrs	Fri 12/14/07	Tue 1/8/08																								
319	4.4.1.4	Science Instruments Test Plan	CN	20 hrs	Tue 1/8/08	Fri 2/1/08																								
320	4.4.2	System Integration & Test Plans	CN	100 hrs	Thu 10/25/07	Thu 12/6/07																								
321	4.5	Configuration Management Plan	JJ	80 hrs	Thu 10/25/07	Tue 1/22/08																								
322	4.6	Project Management Plan	PW	80 hrs	Thu 12/20/07	Thu 1/17/08																								
323	4.7	SEMP Document	PW	80 hrs	Fri 2/1/08	Wed 2/20/08																								



Project: NGAO System Design Phase Date: Fri 4/20/07	Critical		Baseline		Project Summary	
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	Task		Milestone		Deadline	
	Split		Summary Progress			
	Task Progress		Summary			